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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/975,219	10/11/2001	Ferdinand S. Signey	T1-27954	7795
23494	7590	05/09/2005	EXAMINER	
TEXAS INSTRUMENTS INCORPORATED			ALIE, GHASSEM	
P O BOX 655474, M/S 3999			ART UNIT	
DALLAS, TX 75265			PAPER NUMBER	

3724

DATE MAILED: 05/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/975,219

Applicant(s)

SIGNEY ET AL.

Examiner

Ghassem Alie

Art Unit

3724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 April 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 14-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)

1. This is a response to a RCE filed on 04/01/05. In addition, it should be noted that the restriction requirement mailed on 06/21/03 stands and it is maintained. Therefore, claims 14-20 are withdrawn from consideration, as being drawn to a non-elected invention.

Claim Objections

2. Claims 14-20 are objected to because of the following informalities: claims 14-20 have incorrect status identifiers. The status identifier for claims 14-20 is "original" which has been changed to --withdrawn--. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-3, 6-9, 12, 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Maggio (5,834,084). Regarding claims 1, 6, 8, and 12, Maggio teaches a method for cutting integrated circuit packages 150. Maggio also teaches a step of cutting integrated circuit package 150 to be singulated with a water jet. The integrated circuit package 150 is singulated and simultaneously cut into a predetermined shape which is in a shape of a square. In addition, integrated circuit package 150, which includes a plurality of integrated circuit packages 150, can be cut to a predetermined shape or desired shape. For example, four integrated circuit packages 150 can be separated from the panel 200, 200, 400 and other integrated circuit packages in a shape of a square. Integrated circuit package 150 is singulated and shaped to a predetermined and a desired shape along grooves 204, 302, 402

by a water jet cutter. The water jet cutter can be used instead of a diamond saw for singulating and shaping the integrated circuit package. See col. 10, lines 41-45 in Maggio.

Each of the printed circuit boards 150 defines an integrated circuit package, since it has has an integrated circuit 172.

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-3, 6-9, 12, 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Schroen et al. (6,303,977), hereinafter Schroen. Regarding claims 1, 6, 8, and 12, Schroen teaches a method for cutting integrated circuit packages 306. Schroen also teaches a step of cutting integrated circuit package 306 to be singulated with a water jet. See Fig. 3 and col. 8, lines 64-67 and col. 9, lines 1-40 in Schroen. The integrated circuit package 306 is singulated and simultaneously cut into a predetermined shaped which is in a shape of a square. In addition, integrated circuit package 306, which includes a plurality of integrated circuit packages, can be cut to a predetermined shape or desired shape. For example, four integrated circuit packages 306 can be separated from the wafer 303 and other integrated circuit packages in a shaped of a square. Integrated circuit package 306 is singulated and shaped to a predetermined and a desired shape along grooves 307 by a water jet cutter.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 4 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maggio or Schroen in view of Hembree (6,574,858) or Hashish et al. (4,648,215), Hereinafter Hashish. Regarding claims 4 and 10, Maggio or Schroen teaches everything noted above except that the water jet has abrasive particles used for cutting. However, Hashish teach a water jet having abrasive particles used for cutting (abstract; col. 1, lines 24-26). Hembree also teaches a water jet having abrasive particles for cutting and singulating an integrated circuit package 10. See Figs. 1-3 and col. 4, lines 45-65 in Hembree. It would have been obvious to a person of ordinary skill in the art to provide the water jet of Maggio or Schroen with abrasive particles as taught by Hashish or Hembree for improving cutting.
9. Claims 3 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maggio or Schroen in view of Hembree. Maggio or Schroen teaches everything noted above except the integrated circuit package includes a ball grid package. However, Hembree teaches a water jet having abrasive particles for cutting and singulating an integrated circuit package 10. Hembree also teaches that the integrated circuit package 10 has a ball grid package 16. Figs. 1-3 and col. 4, lines 45-65 in Hembree. It would have been obvious to a person of ordinary skill in the art to cut with Maggio's cutting device or Schroen's cutting device an integrated circuit package with a ball grid package as taught by Hembree, since the water jet cutter in Maggio or Schroen is capable of cutting any integrated circuit package including an integrated circuit package with a ball grid package.
10. Claims 5 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Maggio or Schroen in view of Romanini (6,305,261). Maggio or Schroen teaches everything noted above except the step of pressurizing the cutting water jet to a pressure between approximately 500 psi and approximately 2500 psi. However, Romanini teaches pressurizing a cutting water jet to a pressure between approximately 500 psi and approximately 2500 psi (col. 1, lines 18 to 23). It would have been obvious to a person of ordinary skill in the art to provide the water jet of Maggio or Schroen with a pressure between approximately 500 psi and approximately 2500 psi as taught by Romanini for optimum cutting.

Furthermore, it would have been obvious to a person of ordinary skill in the art to provide the water jet of Maggio or Schroen with a pressure between approximately 500 psi and approximately 2500 psi, since the general condition of a cutting water jet, which by nature is pressurized, is disclosed by Maggio or Schroen and it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges, in this case pressures, involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

11. Claims 7 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maggio or Schroen over Applicant Admitted Prior Art (page 5, lines 19-27 of the specification), herein after AAPA. Regarding claims 7 and 13, Maggio or Schroen teaches everything noted above, Maggio or Schroen does not expressly teach that the integrated circuit package is cut such that an interior portion of the integrated circuit package is accessible for testing. However, as admitted by the applicant cross-sectioning of an integrated circuit package by a diamond blade saw is well known in the art. See page 5, lines

19-27 of the specification. Maggio or Schroen teaches a water jet cutter can replace a diamond blade saw in cutting an integrated circuit package. See col. 8 lines 64-67 and col. 9, lines 1-6 in Schroen and col. 10, lines 39-53 in Maggio. Therefore, it would have been obvious to a person of ordinary skill in the art to use Maggio's water jet cutter or Schroen's water jet cutter also to cross-section the integrated circuit package as taught by AAPA, since a water jet cutter can be used instead of a diamond blade saw in cutting a material having a specific hardness.

Response to Amendment

12. Applicant's arguments with respect to claims 1 and 8 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Distefano (5,937,276), Sutton (4,648,298), and Drier, Jr. (4,909,681) teach a water jet cutter for cutting and singulating an integrated circuit package.

Tripard (2001/0052278), Sutton (4,648,298), Grabow (5,117,554), and Shim et al. (6,020,218) teach a router for cutting and singulating an integrated circuit package.

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ghassem Alie whose telephone number is (571) 272-4501. The examiner can normally be reached on Mon-Fri 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Allan Shoap can be reached on (571) 272-4514. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, SEE <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (too-free).

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GA/ga

April 20, 2005



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